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The Verification of MACC-II Global Reactive Gas Forecasts with Global Atmosphere Watch Surface Observations and Ozonesonde Measurements from the NDACC, WOUDC, NILU and SHADOZ Databases

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The MACC-II (Monitoring Atmospheric Composition and Climate- phase II) project, funded under the 7th framework program of the European Union, provides a comprehensive monitoring and operational forecasting system for atmospheric constituents relevant to climate and air quality issues and surface solar radiation. The MACC-II forecast system is based on the global weather forecasting system operated by the European Centre for Medium-Range Weather Forecasts (ECMWF) coupled with the chemistry transport models MOZART (Model for OZone and Related chemical Tracers) and TM5.
On a near real time (NRT) basis observational data and forecasts, as well as reanalyses are made available for greenhouse and reactive gases, UV radiation and aerosol optical density.
The sub group "VAL" is focusing on the evaluation of reactive gases, thus, stratospheric and tropospheric ozone as well as its precursors and aerosols.
The GAW (Global Atmosphere Watch) network provides the ground-based observational data for the evaluation of model simulation forecast and reanalysis of the reactive gases CO and O_3 at surface levels on a global scale. Contributing stations in this validation process provide their data in rapid delivery mode (within 1 day to 1 month), thus enabling a fast evaluation process. Currently, there are 12 stations providing data in Near-Real-Time. The validation process is performed online and daily updates of the results are displayed on the MACC website (http://www.gmes-atmosphere.eu/d/services/gac/verif/grg/gaw/).
For the validation of stratospheric and free tropospheric ozone forecasts, balloon sonde measurements from the data bases NDACC (Network for the Detection of Atmospheric Composition Change), WOUDC (World Ozone and Ultraviolet Radiation Data Centre), NILU (Norwegian Institute for Air Research) and SHADOZ (Southern Hemisphere Additional OZon Sondes) are used.

Here, we will give an overview on the status and the results of this Near-Real-Time (NRT) validation of the coupled forecast system for surface O_3 and CO, based on GAW observational data, as well as for stratospheric ozone based on NDACC, WOUDC, NILU and SHADOZ sonde data.
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